

AN EXAMINATION OF THE EFFECTS OF THE TEXAS FARM BUREAU MOBILE  
LEARNING BARN AGRICULTURAL EDUCATION PROGRAM ON YOUTH'S  
PERCEPTIONS AND KNOWLEDGE OF AGRICULTURE

A Thesis

by

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## ABSTRACT

Agriculture impacts the lives of individuals daily and many people do not realize the effect it has on our society. In efforts to educate people and strive for a more agricultural literate society, agricultural education programs, such as the Texas Farm Bureau Mobile Learning Barn, strive to educate youth about the importance of agriculture. This study documented the agricultural perceptions and knowledge of youth who attended the Texas Farm Bureau Mobile Learning Barn agricultural education program during summer 2013. Participants, who were in the third through fifth grade, completed a pre-test prior to the educational activity and post-test following the activity. A parent of each child was also requested to complete an instrument to collect information regarding family involvement in agriculture.

Findings revealed that youth had an increased knowledge and a more positive perception of agriculture after attending the Mobile Learning Barn agricultural education program. However, no significant difference in knowledge gain was documented. Findings from parental surveys revealed family involvement in agriculture does influence youth's knowledge and perceptions about agriculture. Youth reported to have more agricultural knowledge if their parent had experience in agriculture.

## DEDICATION

To my loving husband and supportive family

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# CHAPTER I

## INTRODUCTION

### **Background and Setting**

Agriculture is an important part of daily life and has always been a significant factor in the sustainability and development of human society (Frick, Birkenholz, & Machtmes, 1995). However, as a society, the United States can be described as unaware about agriculture (Blackburn, 1999) because many families are choosing to reside in urban and suburban communities, removing children from farms and agriculture (Boleman & Burrell, 2003). Removing children from production agriculture has inadvertently created a knowledge gap about the agricultural process that is the foundation of food, clothing, and shelter. Further, children who have parents and grandparents with jobs outside of agriculture are exposed to different career opportunities and choices. Thus, the importance of agriculture is not apparent to everyone, given that career choices are often shaped from past family experiences (Boleman & Burrell, 2003). Parents of adolescents are in a position to strongly influence a youth's career goals, aspirations, and developments (Middleton & Loughhead, 1993). If a family has never been involved in the agricultural industry, a child may never know that agriculture is a potential career choice. Further, children who are not exposed to agriculture tend to have negative thoughts and interpret agriculture as a farmer, a rancher, a cow, and a tractor (Blackburn, 1999).

Today's youth have little general knowledge about the social, economic, and human health issues that are related to agriculture, as well as an understanding of agriculture's relationship with the environment (Reidel, Wilson, Flowers, & Moore, 2007). This lack of knowledge leads youth to assume that milk comes from a grocery store rather than a cow, and the same in regard to eggs, fruits, and vegetables. Youth often do not understand that agriculturalists are growing crops and animals that result in food, materials for clothing, and building supplies that enable others to survive. The value and impact of agriculture can often be overlooked. In fact, consumers do not realize that their choices affect farming and ranching practices as well as food security regulations (Richardson, 1999). This lack of knowledge has revealed that more Americans need to be educated about agricultural processes.

An understanding of the impact that agriculture has on each individual life is critical (Law, 1990). Youth are America's future and it is important to educate youth about agriculture because without this understanding society as a whole will not value the agricultural process. Currently, elementary school children are at least two generations removed from first-hand agricultural knowledge (American Farm Bureau Federation, 2002). It has become increasingly critical that agricultural education programs be in place to inform Americans about agriculture to keep our nation plentiful. Many researchers have studied the lack of knowledge children have about agriculture, which has led to educational programs that have been implemented to educate generations of youth about agricultural commodities (Boleman & Burrell, 2003). In 1981, the United States Department of Agriculture established "Agriculture in the

Classroom” programs which were endorsed by former Secretaries of Agriculture, the National Association of State Departments of Agriculture, most of the State Governors, and the major agricultural groups and organizations (Glassman, Elliot, & Knight, 2006). Not every child in America attends public schools and thus, they do not all have access to the “Agriculture in the Classroom” programs. To address this need, additional programs have been created.

The Texas Farm Bureau conducts one of these innovative educational programs. The Texas Farm Bureau Mobile Learning Barn creates a connection between people and agriculture, and the impact it has on daily lives (Be Smart AG<sup>TM</sup> with Texas Farm Bureau, 2011). It is Farm Bureau’s goal to “Tell Agriculture’s Story” (Be Smart AG<sup>TM</sup> with Texas Farm Bureau, 2011). The educational program is an introduction to agriculture that is designed for youth in Texas. This program seeks to instill basic and minimal agricultural literacy within its participants, providing them with accurate information about agriculture. The program does this by displaying up to seven different agricultural commodities. Informing youth about the different commodities of agriculture provides them with an understanding of the roles of farmers and ranchers. The commodities displayed in the Mobile Learning Barn include beef, corn, cotton, dairy, grain sorghum, and pork with examples of their by-products (Be Smart AG<sup>TM</sup> with Texas Farm Bureau, 2011). There are nine mobile learning barns in Texas that are flexible and versatile and can be used by every county Farm Bureau office throughout Texas (Be Smart AG<sup>TM</sup> with Texas Farm Bureau, 2011). The flexibility of this educational program in terms of mobility allows a greater reach than similar classroom-

based programs. People who have administered this program believe that the Mobile Learning Barn is effective in educating youth about the commodities of agriculture, but no documentation of an official evaluation or research study concerning the impact the program has on youth's perceptions and knowledge about agriculture was located.

Agricultural education programs have strived to increase the literacy of our nation's population. A person that has some knowledge of food and fiber production, processing, and marketing is described as agriculturally literate (National Research Council, 1988). Ryan and Lockaby (1996) noted that an agriculturally literate population helps to ensure that citizens make informed as well as intelligent decisions concerning agricultural policies that benefit the American society. Youth are the decision makers of tomorrow and one day they will make important state, national, and world decisions pertaining to all aspects of agriculture. Agricultural literacy does not imply a complete level of understanding about agriculture, but an understanding of basic agricultural methods as well as the ability to understand the impact of agriculture on society (Elliot, 1999; Frick & Spotanski, 1990).

### **Statement of the Problem**

Agriculture makes up 15% of the American work force, with more than 21 million people employed in some phase of production, processing, and selling of food and fiber (American Farm Bureau Federation, 2013). America's agriculture is a broad-based dynamic industry that employs people throughout every community in America (Glassman et al., 2006). Today's generation does not focus directly on agriculture as a career as much as past generations. This is very likely related to the decreasing farming

population from 30% in 1920 to 2.2% in the 1980s (Camp, Clarke, & Fallon, 2000). New agricultural occupations have appeared in the past several years. The nation needs children to take interest in new agricultural career paths that are critical to the success of agriculture. The future of agriculture is in the hands of the 98% of the United States population who are removed from the farm (Glassman et al.). The majority of agriculture policy decisions are made by those who are not agricultural producers (Glassman et al.). Our nation needs future generations to understand the importance of agriculture to ensure the quality and safety of agricultural products. If individuals are without a basic understanding of agriculture they will respond to policy decisions without the necessary knowledge to make informative decisions, which can result in irreparable damage to the industry (Tisdale, 1991). The Texas Farm Bureau Mobile Learning Barn strives to educate youth about the basic commodities of agriculture and lay a foundation for agricultural literacy.

The direct impact of the Mobile Learning Barn agricultural education program is unknown and it has not been documented as to whether or not the program is successful in changing participant's perceptions and knowledge about agriculture. Research by Boleman and Burrell (2003) revealed an increase in knowledge among youth following their participation in a separate and different agricultural education program. Many studies have measured the perception and knowledge of youth (Bell-Ritz & Lockaby, 1996; Townsend, 1990; Ricketts & Place, 2005; Meunier, Talbert, & Latour, 2003). The theoretical framework for this study was built upon the findings from these studies. The study reported here documented the impact on the perceptions and knowledge of

agriculture due to participation in the Texas Farm Bureau Mobile Learning Barn agricultural education program.

### **Purpose**

The purpose of this study was to evaluate the effect of the Mobile Learning Barn agricultural education program on the knowledge and perceptions of third through fifth grade youth who attended the program. A secondary purpose was to evaluate parental influence on participant's perceptions and knowledge about agriculture.

### **Objectives**

1. Determine knowledge and perceptions of youth concerning agriculture before attending the Mobile Learning Barn agricultural education program.
2. Determine knowledge and perceptions of youth concerning agriculture after attending the Mobile Learning Barn agricultural education program.
3. Compare the youth's perceptions about agriculture before and after attending the Mobile Learning Barn agricultural education program.
4. Compare the youth's knowledge about the commodities of agriculture before and after attending the Mobile Learning Barn agricultural education program.
5. Determine if parental experience with agriculture impacts youth's knowledge or perceptions of agriculture.

## **Expected Outcomes**

Based on the objectives, the researcher expected to find:

1. a positive impact on a participant's perceptions about agriculture after attending the Mobile Learning Barn agricultural education program.
2. an increased knowledge about agriculture after a participant attended the Mobile Learning Barn agricultural education program.
3. that a parent's history and exposure to agriculture impacts their child's perceptions and knowledge about agriculture.

## **Scope of the Study**

The study included third through fifth grade youth who were members of the Boys & Girls Club in Denton and Cooke County who attended the Texas Farm Bureau Mobile Learning Barn agricultural education program during the summer of 2013. The literature reports that the target audience for educational programs should be elementary aged students, especially fourth graders (Meunier et al., 2003; Boleman & Burrell, 2003). The scope of the study was extended to include the parents of the youth. The participants were purposively selected due to their membership in the Boys & Girls Club, participation in the Mobile Learning Barn agricultural education program and their willingness to complete a pre-test and post-test instrument. The parental instrument was administered at the same time as the parent permission form, one week prior to the youth's participation in the Mobile Learning Barn agricultural education program. The pre-test instrument was administered to the youth thirty minutes prior to attending the Mobile Learning Barn agricultural education program. The post-test instrument was



administered immediately after attending the Mobile Learning Barn agricultural education program.

### **Significance of the Study**

Studies have revealed that there is a need to expose youth to agriculture in order to increase their agricultural literacy. Awareness of agriculture will allow youth to be better informed citizens and to gain knowledge of potential career choices. If our leaders are not sharing accurate knowledge about agricultural issues, it is likely that people will learn about agricultural issues from those who are not knowledgeable about the industry or its impacts on the community (Glassman et al., 2006).

Exposure to agriculture at a young age has the potential to have a positive impact on youth's perceptions and knowledge and potentially lead them to pursue a career in agriculture (Meunier et al., 2003). Researching each agricultural education program assists educators in understanding the effectiveness of each program and enables the development of methods that can allow for an improvement in youth knowledge and positively impact youth perceptions about agriculture. These impacts have the potential to ensure a strong future for agriculture.

### **Assumptions**

This study was based upon several assumptions. The researcher assumed that:

1. All parent participants answered the questions on the instrument truthfully.

2. All youth participants answered the agricultural knowledge questions to the best of their ability at the time of completing the pre-test and post-test instruments.
3. All youth participants answered the agricultural perception questions truthfully.
4. All participants had an equal opportunity to learn from each section of the Texas Farm Bureau Mobile Learning Barn agricultural education program.

### **Limitations**

This study was subject to the following limitations:

1. Only participants who were a member of the Boys & Girls Clubs in Denton and Cooke County had the opportunity to be selected to attend the Mobile Learning Barn agricultural education program for this study.
2. Only parents of participants who had the opportunity to attend the Mobile Learning Barn agricultural education program had the opportunity to participate.
3. Only participants who submitted a signed parental permission form to the researcher were able to participate in the study.
4. The results from the study can only be generalized to the population of third through fifth grade youth who completed the research instruments.

5. Secondary impacts on the youth could have impacted the results of the study (e.g., agricultural lessons in the public schools, exposure to additional activities, or cultural differences).
6. As youth attended the program, the youth had to stand outside in the rain during parts of the program. Weather could have impacted the youth's perceptions and knowledge.
7. The youth attended the Mobile Learning Barn agricultural education program during the summer rather than during the academic school year, which could have impacted their enjoyment.

### **Definition of Terms**

The following are terms that were used throughout this study.

- Agricultural Industry – Any agricultural based type work including: raising and harvesting of livestock, crops, and aquaculture, the educational aspect of teaching people about agriculture or giving them the knowledge to better their career in agriculture. Agricultural economics and agribusiness are also considered in the agriculture industry.
- Agricultural Literacy - The goal of education about agriculture or a person that possess some knowledge of food and fiber production, processing, and marketing is described as agriculturally literate (National Research Council, 1988)
- Impact – The Mobile Learning Barn influencing perceptions or knowledge of agriculture.
- Knowledge – the fact of knowing something with familiarity gained

through experience or association (Mish, 2001).

- Perception – the conscious understanding of something (Mish, 2001).
- Pursue – to one day, as an adult, desire to have a career in an agricultural industry.
- Texas Farm Bureau – agency that is interested and active in teaching the youth of Texas about agriculture through their Mobile Learning Barn and other activities and functions.
- Texas Farm Bureau Mobile Learning Barn - a learning center that can be used by every county Farm Bureau throughout Texas. The barn can be used at agriculture fairs and Ag Days, county livestock shows, or schools (Be Smart AG<sup>TM</sup> with Texas Farm Bureau, 2011).
- Want – to have the urge and/or interest in doing something.
- Youth – the early period in a child's life and development.

## **Chapter Summary**

Agriculture continues to play an important role in our nation's economy and national security (Glassman et al., 2006). Most Americans have limited knowledge about agriculture and food and fiber production (Frick, Birkenholz, Gardner, & Machtmes, 1995); therefore, it is critical that agricultural education programs teach youth about agriculture. To ensure accuracy and job placement for our future, it is vital that consumers and policy makers be "agriculturally literate" in order to respond to issues appropriately (Frick, Birkenholz, Gardner, et al. 1995). Mawby (1984) noted that by "...educating Americans in the wise management of food supplies and related

renewable resources, we can anticipate more knowledgeable decision-making about agriculture in the future." According to the National Research Council (1988), all students, kindergarten through twelfth grade, should receive instruction on agricultural literacy. Agricultural literacy instruction is not always readily available to youth or to those who do not attend public school. The Texas Farm Bureau strives to reach out to youth around Texas and inform them about agriculture. The focus of this study was to determine the impact of the Texas Farm Bureau Mobile Learning Barn agricultural education program on youth's perceptions and knowledge about agriculture.

## CHAPTER II

### LITERATURE REVIEW

In recent decades, agriculture has become increasingly complex and technologically advanced (Betts & Newcomb, 1986). This industry requires a steady supply of highly educated professionals to ensure the future success of agriculture (Betts & Newcomb, 1986). While production agriculture has transformed to produce a greater amount of product with fewer individuals (Richard, 2009), the total number of people who are employed in the agricultural industry has risen (Richard, 2009). This has caused the number of individuals employed in agricultural support industries to outweigh those in production agriculture jobs by sixteen percent (Gilmore & Whatley, 2006). As individuals become more dependent on readily available food sources, the employment number will continue to grow (Richard, 2009). The American society has been stated as being "agriculturally ignorant" (Coon & Cantrell 1985), which creates difficulty in finding people who have an interest in the agricultural industry. The urbanization of the American population and misinformation about agricultural topics are thought to be causes (Richard, 2009).

Currently, some of the most controversial issues (health, environmental, food safety, and animal welfare) being debated in America are related to agriculture (Terry & Lawyer, 1995). Discussions and decisions about these issues impact the processes used in the food and fiber industries (Terry & Lawyer, 1995). These issues are only a few of the new developments that the field of agriculture deals with on a daily basis (Richard,

2009). It is important for people to understand how these industries affect their way of life because these issues have become more prominent in society (Terry & Lawyer, 1995), because national changes in production, marketing, and management of resources affect citizens in America (Richard, 2009).

### **Agriculture in Society**

There has been a growing sense that agriculture has been neglected (Wiggins, Kirsten, & Llambí, 2010). This is much different from previous years. In 1820, urban communities accounted for approximately 10% of the populated areas; however, in 1990 urban communities increased to accounting for approximately 75% of the populated area in the United States (Committee on a Leadership Summit to Effect Change in Teaching and Learning, National Research Council, 2009). There is a significant concern that the leaders of our county, state, and nation be knowledgeable about agriculture. Members of the community who are involved in agricultural policy decision making need a basic agriculture understanding (Glassman et al., 2006). The current pool of agriculturally literate policy decision-makers is decreasing quickly (Law & Pepple, 1990). The future of agriculture is in the hands of the remaining 98% who are removed from the farm because agricultural policy decisions are made by those who are not agricultural producers (Glassman et al.).

The United States cannot afford to have citizens with little knowledge about agriculture make decisions about agricultural policy (Law & Pepple, 1990). For example, issues concerning genetically engineered (GE) crops in the United States have been debated by consumers who have little knowledge about what GE means. The

issues can range from economic and environmental impacts to consumer acceptance (Fernandez Cornejo & Caswell, 2006). Environmental and consumer concerns have caused limited acceptance of GE crops despite the benefits of GE crops (Fernandez Cornejo & Caswell, 2006). Studies revealed that United States consumers eat products derived from these crops unaware of their GE content (Fernandez Cornejo, & Caswell, 2006). Studies by Cornejo and Caswell (2006) prove that GE crops have a positive economic impact as well as environmental benefits. The lack of knowledge consumers have has been a concern for our nation. The number of United States citizens who are literate in regard to agriculture is drastically decreasing, causing agricultural professionals to be concerned with the future of agriculture.

Americans have continued on a course away from direct ties to production agriculture with each passing generation (Flood & Elliot, 1994). This is causing an inevitable lack of knowledge about basic agricultural practices, including food safety, food supply, and the economy of agriculture which in turn impacts the viewpoints and opinions of the general public. Americans spent less than 15% of their disposable income on food in 1991 due to increases in technology and production costs (Tisdale, 1991). People do not realize that they are spending less of their income on food due to innovative agricultural practices and an increase in technology use. On the other hand, bargain prices that are offered by United States' agriculture are appreciated by agriculturally literate people for their abundant and safe food supply (Tisdale, 1991). This led the National Research Council (1988) to report that the consuming public lacks



an understanding of the importance of agricultural policies including the supply and cost of agricultural products.

Agricultural literacy has a direct impact on increasing the amount of agricultural knowledge that has allowed individuals to make informed personal choices (Agriculture Council of America, 2013). Thus, it is important that youth become literate about agriculture to insure agricultures' future. The recent decrease in agricultural literate youth is due in part to agriculture not being an integral part of obvious daily life. Elementary school children interpret the agriculture industry as many stereotypes such as a farmer, a cow, a tractor, and a rancher (DeWerff, 1989). Children often have the idea that food simply comes from the store (Blackburn, 1999). Thus, professionals have addressed this problem by implementing various programs to increase agricultural literacy among youth and positively impact perceptions and knowledge regarding agriculture.

### **Agricultural Education Programs**

Studies show that with less than 2% of Americans involved in traditional production of agriculture, agricultural programs need to change to address the future of our workforce (Parker, Brase, Dewsnup, Anderson, Collins, Klopp, & Feldmann, 2009). Glassman, Elliot, and Knight (2006) cited Cardwell (1994) in sharing that in order for people to make good decisions (including both economic and political) about natural resources they must first be knowledgeable about science and agriculture. The ability to properly inform citizens about the truth regarding agriculture allows individuals to observe educated decisions being made to benefit society (Richard, 2009). These studies

and others led to the creation of agricultural programs for school aged children. In 1981 the United State Department of Agriculture established “Agriculture in the Classroom” programs (Glassman et al., 2006). Through partnerships with agriculture, business, education, government and dedicated volunteers, these programs have made significant progress in order to create curriculum that may be infused into local school districts (Glassman et al.).

In 1988, the National Research Council’s Committee on Agricultural Education in Secondary Schools suggested that an agriculturally literate person would understand the Food and Fiber System (National Research Council, 1988). “Agriculture in the Classroom” programs were designed with the goal of providing a foundation of agricultural literacy for school-aged children that would carry into their adulthood. Agricultural literacy levels of community leaders has been researched considerably and studies found that there was no significant relationship between agricultural knowledge of community leaders and the participation in high school agricultural courses (Bell-Ritz & Lockaby, 1996; Elliot & Olson, 1995). Researchers have been able to isolate activities that may positively increase agricultural literacy of a community by studying the effects of different activities on policy makers who impact the perspectives of citizens (Glassman et al., 2006).

American agriculture has been influenced and enhanced by the American Farm Bureau (Richard, 2009). The logical name for the organization that addressed farming issues was coined by Byers H. Gitchell, secretary of the Binghamton, New York Chamber of Commerce, to be the “Farm Bureau” (Kile, 1948). This organization

followed the objective that the organization was to “develop, strengthen, and correlate the work of the state Farm Bureau Federations of the Nation; to encourage and promote agricultural organizations to improve the public agriculture, informing farm bureau members regarding all movements that affect their interests” (Kile, 1921).

The Texas Farm Bureau provides a unique program that may change the workforce for the future. The Mobile Learning Barn is a part of the Texas Farm Bureau “Agriculture in the Classroom” educational program. The Mobile Learning Barn can be used by every county Farm Bureau throughout Texas (Be Smart AG<sup>TM</sup> with Texas Farm Bureau, 2011). The barn can be used at agricultural fairs and Agriculture Days, county livestock shows, and schools to “Tell Agriculture’s Story” (Be Smart AG<sup>TM</sup> with Texas Farm Bureau, 2011). Youth equate agriculture with farming, which is perceived as boring, stressful, and hard physical labor with low pay (Cotton, Hashem, Marsh, & Dadson, 2009). The Texas Farm Bureau hopes to decrease these negative thoughts by using different methods to present agricultural education to students so that it will greatly influence the students’ attitudes towards learning material (Okiror, Matsiko, & Oonyo, 2011). Also, a students’ knowledge about agriculture can be increased by using a hands-on approach (Platt, Rusk, Blomeke, Talbert, & Latour, 2008). The Mobile Learning Barn provides students the opportunity for youth to engage in a hands-on experience in hopes to get them interested and excited about agriculture. The Texas Farm Bureau and other researchers; (Cotton et al.,) are hopeful that through continuous exposure to the agricultural sciences, a cadre of enlightened youth will be formed who have been encouraged to consider careers in the food and agricultural sciences.

## **Theoretical Framework**

Many studies have measured the perception and knowledge of youth in regard to the impact of hands-on activities (Bell-Ritz & Lockaby, 1996; Townsend, 1990; Ricketts & Place, 2005). These studies helped build the theoretical framework for this study along with studies that compared parent involvement to children's achievement (Brustad, 1996; Rogers, Theule, Ryan, Adams, and Keating, 2009; McCall, Evahn, and Kratzer, 1992). Bell-Ritz and Lockaby, (1996) researched if field-trip only, in-class only, or fieldtrip and in-class have a positive or negative impact on a youth's agricultural literacy. They concluded that field-trip only, in-class only, or fieldtrip and in-class have a positive impact on agricultural literacy of elementary students (Bell-Ritz, & Lockaby, 1996). Townsend (1990) found that agricultural education programs can build positive perceptions towards agriculture, allowing them to develop into positive and informed leaders. Meunier et al. (2003) recommended that hands-on activities be included in educational intervention materials for fourth grade students to increase knowledge of basic agriculture-related science concepts. It was also reported by Boleman and Burrell (2003) that hands-on learning in an "Agricultural Field Day" increased fourth grade students' agricultural knowledge. The results of an increase in knowledge about agriculture in each of these studies would also lead to an increase in agricultural literacy in youth.

Parents serve a vital role in influencing their children to learn or be interested in a subject. A study by Brustad (1996) on first through sixth grade children discovered a significant relationship between a child's attraction to physical activity and parental

socialization processes. Rogers et al. (2009) stated that parents' educational involvement has been linked to children's academic outcomes in multiple ways, including higher academic achievement reported by Bogenschneider (1997) and more positive attitudes toward school reported by Gonzalez-DeHass, Willems, & Holbein (2005). Rogers et al. suggested that a child's academic outcomes can be influenced by parent's active participation in and management of learning in the home. Children's grades in the elementary school are predictive of various aspects in life, including future higher education, career stability, and marital status (McCall et al., 1992). As parents become more involved in their child's educational life, children become more successful. Parents who encourage education about agriculture can increase a child's positive perception and knowledge that can eventually lead to a more agriculturally literate society. Agriculturally literate citizens and consumers can make better decisions increasing the entire agricultural literacy population (Bell-Ritz, & Lockaby, 1996). As agricultural literacy improves, more youth will be exposed to agricultural opportunities and be more likely to enter agricultural careers in the future (Bell-Ritz, & Lockaby, 1996).

### **Chapter Summary**

Agriculture has always been a significant factor in the sustainability and development of human society (Frick, Birkenholz, & Machtmes, 1995). There has been a growing sense that agriculture has been neglected (Wiggins et al., 2010). Thus, it is important that a basic agricultural understanding is obtained by members of the community who are involved in agricultural policy decision making (Glassman et al.,

2006). A basic agricultural understanding is also known as agricultural literacy. A report by the National Research Council stated that an agriculturally literate person should understand many aspects of the food and fiber system (National Research Council, 1988). To help with these issues the United States Department of Agriculture in 1981 established “Agriculture in the Classroom” programs (Glassman et al.). This program was put into place to teach youth about the importance of agriculture and to begin a foundation of agricultural literacy. The Texas Farm Bureau has a similar “Ag-in-the-Classroom” program, the Mobile Learning Barn. The Mobile Learning Barn is a versatile learning center used by every county Farm Bureau throughout Texas (Be Smart AG<sup>TM</sup> with Texas Farm Bureau, 2011). The barn can be used at agricultural fairs and Ag Days, county livestock shows, and schools to “Tell Agriculture’s Story” (Be Smart AG<sup>TM</sup> with Texas Farm Bureau, 2011).

The need for agricultural literacy served as the theoretical framework for this study. Super, Crites, Hummel, Moser, Overstreet, and Warnarth (1957) believed that children at the fourth grade level are receptive to concepts regarding vocations; therefore, DeWerff (1989) suggested learning about agriculture should begin at a young age. Children can be influenced by their parent’s career choices as well as parental encouragement and involvement. Trice (1991) found that 11-year-old rural children selected a career similar to that of their parents. Rogers et al. (2009) suggested that parents can influence a child’s academic outcomes by active participation and management of learning in the home. It is vital to our nation’s future that we teach youth about the importance of agriculture.

## CHAPTER III

### METHODOLOGY

#### **Purpose**

The purpose of this study was to evaluate the effect of the Mobile Learning Barn agricultural education program on the knowledge and perceptions of third through fifth grade youth who attended the program. A secondary purpose was to evaluate parental influence on participant's perceptions and knowledge about agriculture.

#### **Objectives**

The objectives that guided this study included:

1. Determine knowledge and perceptions of youth concerning agriculture before attending the Mobile Learning Barn agricultural education program.
2. Determine knowledge and perceptions of youth concerning agriculture after attending the Mobile Learning Barn agricultural education program.
3. Compare the youth's perceptions about agriculture before and after attending the Mobile Learning Barn agricultural education program.
4. Compare the youth's knowledge about the commodities of agriculture before and after attending the Mobile Learning Barn agricultural education program.

5. Determine if parental experience with agriculture impacts youth's knowledge or perceptions of agriculture.

### **Study Design**

A one-group pre-test post-test design was used to study youth's perceptions and knowledge about agriculture. Survey research was used to assess parental influence on a youth's perceptions and knowledge about agriculture.

### **Population**

A census was taken from third through fifth grade youth who attended the Boys and Girls Club of Cooke County or the Boys and Girls Club of North Central Texas. Two clubs were asked permission to have the Texas Farm Bureau Mobile Learning Barn provide their educational program on site. They were also asked if it was possible to allow the required age group for this study to participate separately from other members of the club. Once each club location indicated their willingness to host the Mobile Learning Barn, the parents of each club member were asked for their willingness to allow their child to participate in the study. Researchers have found that the target audience for the agricultural education programs should be elementary-aged students, preferably fourth graders (Meunier et al., 2003; Boleman & Burrell, 2003); this research provided the age group selection for this study. Third through fifth grade children were chosen to broaden the population size. Children between the ages of nine to twelve years old and in the third, fourth, or fifth grade were asked to participate. Institutional Review Board approval was obtained and proper protocol was followed regarding the obtainment of parent permission for youth participation (see Appendix E). The



population of the study consisted of 49 third through fifth grade children from two different Boys and Girls Clubs located in North Texas.

### **Survey Instrument Design**

Data collection instruments were modified from a previous study about the knowledge and perceptions of agriculture among third through fifth grade children. Pre-test and post-test instruments were used with a design following a similar format used by Boleman and Burrell (2003). However, modifications to the instruments were made by the researcher in order to make the instrument appropriate for the study. The pre-test instrument included a knowledge section, perceptions section, and demographics section (see Appendix A). The post-test instrument included a knowledge section and perceptions section (see Appendix B). The knowledge section of the pre-test and post-test instruments directed respondents to answer ten questions regarding basic agricultural knowledge questions. Each question was a multiple choice question with four choices, one being the correct answer. The questions covered the agriculture material that the children would be exposed to during the program. The perception section consisted of fifteen questions relating to the child's personal perception of how agriculture affects his/her daily life. The response choices for ranking student perceptions included: "Yes," "No," and "I don't know." The demographic variables included age, gender, ethnicity, and past agricultural experience.

A parental survey was also developed to determine if parent's knowledge and involvement in agriculture affects their child's knowledge and perceptions about agriculture. The data collecting instrument was developed by the researcher and

reviewed by a panel of experts. The instrument included one demographic question and six perception questions (see Appendix D). Each question was multiple-choice with three to four choices.

### *Validity*

Content validity was determined through the use of a review panel, which evaluated each instrument for clarity and appropriateness for both audiences. Personnel from the Texas Farm Bureau also reviewed each instrument for valid content as well as providing insight on the material that would be covered during the program. The instruments were based upon previous studies regarding the perceptions and knowledge of youth before and after participation in an agricultural education program.

The reliability of each instrument was tested using Cronbach's alpha to determine the internal consistency of items in the survey instrument (Santos, 1999). The reliability for the pre-test instrument was .720 and the reliability for the post-test instrument was .738. The reliabilities for the pre-test and post-test instruments were deemed acceptable for early stages of research (Nunnally, 1967).

### **Data Collection**

Two groups (i.e., Boys and Girls Clubs near North Texas) volunteered to serve as the data collection sites. Each of the two sites determined if they were going to be a part of the study and encouraged their members to participate. All children who were registered at each of the sites were provided with a parent permission form and survey to take home and every child returned a signed parent permission form (see Appendix C). All children were allowed to participate in the educational activity. However, prior to

collecting data, the children who presented the signed parental permission form were allowed to fully participate in the study through the completion of the instruments. An explanation of the study was provided to the children and each child was then asked if they would like to participate in the study. If the child chose to participate, the researcher gave him or her, the instrument.

The pre-test instrument was distributed to all willing participants at the same time. There were no children who declined to participate in the study. The students required approximately fifteen minutes to complete the instrument. Each child handed in their instrument to the researcher as they finished. After all the children had completed the pre-test they were escorted outside to participate in the Texas Farm Bureau Mobile Learning Barn agricultural education program.

Upon return of the children from the educational program, participants were asked to participate in the completion of the post-test instrument. If the child chose to participate they were provided the post-test instrument to complete. All knowledge and perception questions were identical to the pre-test instrument but in a different order. The children required approximately fifteen minutes to complete the post-test instrument. Each child handed in their instrument to the researcher as they finished.

### **Data Analysis**

The data was analyzed using the SPSS Statistics Program Version 21. Participants' knowledge and perception data from both the pre-test and post-test instruments were used to address objective one (i.e., determine knowledge and perceptions of youth concerning agriculture before attending to the Mobile Learning

Barn agricultural education program), objective two (i.e., determine knowledge and perceptions of youth concerning agriculture after attending to the Mobile Learning Barn agricultural education program), objective three (i.e., compare the youth's perceptions about agriculture before and after attending the Mobile Learning Barn agricultural education program), objective four (i.e., compare the youth's knowledge about the commodities of agriculture before and after attending the Mobile Learning Barn agricultural education program), and objective five (i.e., determine if parental experience with agriculture impacts youth's knowledge or perceptions of agriculture).

### **Institutional Review Board**

Approval of all research studies that involve human subjects is required by Texas A&M University policy and federal regulations before investigators can begin their research. To protect the rights and welfare of human subjects involved in biomedical and behavioral research, the Texas A&M Office of University Research Services and the Institutional Review Board conduct a review of all human subject research. This study was reviewed and the researcher was granted permission to proceed. The protocol number assigned to this study was 2013-0411 (see Appendix E).

## CHAPTER IV

### FINDINGS AND DISCUSSION

A quantitative data analysis of the pre-test and post-test instrument responses was completed and the findings and discussion are presented below. The purpose of this study was to evaluate the effect of the Mobile Learning Barn agricultural education program on the knowledge and perceptions of third through fifth grade youth who attended the program. A secondary purpose was to evaluate parental influence in participant's perceptions and knowledge about agriculture. The objectives that guided the study included:

1. Determine knowledge and perceptions of youth concerning agriculture before attending the Mobile Learning Barn agricultural education program.
2. Determine knowledge and perceptions of youth concerning agriculture after attending the Mobile Learning Barn agricultural education program.
3. Compare the youth's perceptions about agriculture before and after attending the Mobile Learning Barn agricultural education program.
4. Compare youth's knowledge about the commodities of agriculture before and after attending the Mobile Learning Barn agricultural education program.

5. Determine if parental experience with agriculture impacts youth's knowledge or perceptions of agriculture.

The objectives guided the presentation of the findings. Following the profile of the respondents, findings related to each objective are presented.

## **Profile of Respondents**

### *Demographics and Background*

Study participants were recruited from Boys and Girls Clubs who gave permission for the Texas Farm Bureau Mobile Learning Barn agricultural education program to come to their location. Both of the Boys and Girls Clubs were located in an urban area with rural surrounding areas. The total population for the study consisted of 49 participants from two clubs as well as the parent of each child. Of the 49 participants, 40.8% were male and 53.1% were female (see Table 1) between the ages of nine and twelve (see Table 2).

Table 1

*Gender of Participants of the Mobile Learning Barn Agricultural Education Program During the Summer of 2013 in Two Counties (N=46)*

Gender	<i>n</i>	%
Male	20	40.8
Female	26	53.1

*Note.* There were 3 participants who did not respond.

Table 2

*Age of Participants of the Mobile Learning Barn Agricultural Educational Program During the Summer of 2013 in Two Counties (N=49)*

Ages	<i>n</i>	%
9 years old	26	53.1
10 years old	14	28.6
11 years old	8	16.3
12 years old or older	1	2

Participant ethnicity was categorized into the groups of African-American (Black), Caucasian (White, Non-Hispanic), Hispanic (Includes people of Mexican, Puerto Rican, Cuban, Central or South American Descent), Asian-American or Pacific Islander, Native-American, and Other. The majority of the students participating in this study were categorized as Caucasian (36.7%) and Hispanic (24.5%). No individuals were Asian-American or Pacific Islander, four were Native American, five participants were African-American, and ten individuals reported other (see Table 3).

Table 3

*Ethnicity Among Participants of the Mobile Learning Barn Agricultural Education Program During the Summer of 2013 in Two Counties (N=49)*

Ethnicity	<i>n</i>	%
African American (Black)	5	10.2
Caucasian (White, Non-Hispanic)	18	36.7
Hispanic (Including people of Mexican, Puerto Rican, Cuban, Central or South American Descent)	12	24.5
Asian-American or Pacific Islander	0	0
Native-American	4	8.2
Other	10	20.4



## **Objective 1**

*Determine knowledge and perceptions of youth concerning agriculture before attending the Mobile Learning Barn agricultural education program.*

Two of the participants scored 100% correct on the 10 question pre-test instrument. The mean on the pre-test was 7 (out of 10) with a standard deviation of 1.98. Perception of agriculture among the participants prior to attending to the Mobile Learning Barn agricultural education program was reported in Table 4. Overall, agricultural perceptions of the participants varied. For this population, 65.3% of the participants stated that they would like to learn more about agriculture, 63.3% believed that youth like themselves should learn more about agriculture, while only 34.7% believed that agriculture impacted their daily lives. Only 55.1% of the participants responded positively to the statement “I am excited about my tour to the Mobile Learning Barn,” while 32.7% responded they “did not know” if they were excited.

Table 4

*Summary of Pre-Test Perception Statement Responses for Participants of the Mobile Learning Barn Agricultural Education Program During the Summer of 2013 in Two Counties (N=49)*

Perception Statement	<u>Yes</u>		<u>No</u>	
	%	n	%	n
Agriculture is a part of my daily life.	36.7	18	44.9	22
Agriculture impacts me daily.	34.7	17	38.8	19
Agriculture is important to my community.	79.6	39	4.1	2
I feel that it is important for youth like me to learn about agriculture.	63.3	31	12.2	6
I am excited about my tour of the Mobile Learning Barn.	55.1	27	10.2	5
I would like to learn more about agriculture.	65.3	32	14.3	7
I would like to work in agriculture.	32.7	16	36.7	18
There are many jobs in the area of agriculture.	44.9	22	6.1	3
When I hear the word Agriculture – I see it as a positive.	53.1	26	16.3	8
Shelter is a result of agriculture practices.	36.7	18	12.2	6
Agriculture is an interesting topic.	49.0	24	20.4	10
I have observed agriculture in action.	30.6	15	36.7	18
Food is a result of agriculture practices.	51.0	25	12.2	6
Clothing is a result of agriculture practices,	40.8	20	10.2	5
When I hear the word Agriculture – I see it as a negative.	10.2	5	44.9	22

*Note.* Respondents could select “Yes,” “No,” or “I don’t know.” Only “Yes” and “No” responses are reported.

## **Objective 2**

*Determine knowledge and perceptions of youth concerning agriculture after attending the Mobile Learning Barn agricultural education program.*

Three of the participants scored 100% correct on the post-test instrument. The average mean of the knowledge section of the post-test was 7.24 with a standard deviation of 2.17 out of a possible score of 10. The perception of agriculture among participants after attending the Mobile Learning Barn agricultural education program was reported in Table 5. Overall, post perceptions of agriculture for the third through fifth grade children were positive. For this population, only 69.4% of the participants stated that they enjoyed their school tour to the Texas Farm Bureau Mobile Learning Barn agricultural education program and 73.5% felt that it was important for students like themselves to learn more about agriculture, 83.7% believing that agriculture is important to their community. Over 90% of the participants believed that clothing is a result of agricultural processes.

Table 5

*Summary of Post-Test Perception Statement Responses for Participants of the Mobile Learning Barn Agricultural Education Program During the Summer of 2013 in Two Counties (N=49)*

Perception Statement	<u>Yes</u>		<u>No</u>	
	%	<i>n</i>	%	<i>n</i>
Agriculture is a part of my daily life.	31.2	30	22.4	11
Agriculture impacts me daily.	55.1	27	26.5	13
Agriculture is important to my community.	83.7	41	4.1	2
I feel that it is important for youth like me to learn about agriculture.	73.5	36	12.2	6
I liked my tour of the Mobile Learning Barn.	69.4	34	12.2	6
I would like to learn more about agriculture.	65.3	32	14.3	7
I would like to work in agriculture.	42.9	21	36.7	18
There are many jobs in the area of agriculture.	75.5	37	8.2	7
When I hear the word Agriculture – I see it as a positive.	71.4	35	14.3	7
Shelter is a result of agriculture practices.	49.0	24	18.4	9
Agriculture is an interesting topic.	69.4	34	14.3	7
I have observed agriculture in action.	63.3	31	24.5	12
Food is a result of agriculture practices.	73.5	36	14.3	7
Clothing is a result of agriculture practices,	91.8	45	2.0	1
When I hear the word Agriculture – I see it as a negative.	30.6	15	49.0	24

*Note.* Respondents could select “Yes,” “No,” or “I don’t know.” Only “Yes” and “No” responses are reported.

### **Objective 3**

*Compare the youth's perceptions on agriculture before and after attending the Mobile Learning Barn agricultural education program.*

Youth perceptions were impacted through exposure to the Mobile Learning Barn agricultural education program. Youth reported an overall increase in positive perceptions about agriculture after the experience. However, one statement related to believing that agriculture is an important part of their daily lives, dropped by 5.5%. Perceptions related to the value of agriculture to the community became more positive. Prior to attending the Mobile Learning Barn agricultural education program, 79.6% of participants reported that agriculture was important to their community, while after attending the program 83.7% reported that agriculture was important to their community. There was no change in the responses to the statement regarding the desire to learn more about agriculture. Participants reported a 10.2% increase in interest in working in agriculture after attending the program as well as a 30.6% increase in believing that there are many jobs in the area of agriculture. Nine more children reported that they see agriculture as a positive after attending the Mobile Learning Barn; however, there was a 20.4% increase in relation to agriculture being seen as a negative. A summary of responses to the perception statements regarding agriculture is provided in Table 6.

Table 6

*Summary of “Yes” Responses to Agriculture Perception Statements for Participants of the Mobile Learning Barn Agricultural Education Program During the Summer of 2013 in Two Counties (N=49)*

Perception Statement	<i>Pre</i>		<i>Post</i>		<i>Difference (Post-Pre)</i>	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Agriculture is a part of my daily life.	36.7	18	31.2	30	-5.5	-12
Agriculture impacts me daily.	34.7	17	55.1	27	+20.4	+10
Agriculture is important to my community.	79.6	39	83.7	41	+4.1	+2
I feel that it is important for youth like me to learn about agriculture.	63.3	31	73.5	36	+10.2	+5
I would like to learn more about agriculture.	65.3	32	65.3	32	-	-
I would like to work in agriculture.	32.7	16	42.9	21	+10.2	+5
There are many jobs in the area of agriculture.	44.9	22	75.5	37	+30.6	+15
When I hear the word Agriculture – I see it as a positive.	53.1	26	71.4	35	+18.3	+9
Shelter is a result of agriculture practices.	36.7	18	49.0	24	+12.3	+6
Agriculture is an interesting topic.	49.0	24	69.4	34	+20.4	+10
I have observed agriculture in action.	30.6	15	63.3	31	+32.7	+16
Food is a result of agriculture practices.	51.0	25	73.5	36	+22.5	+11
Clothing is a result of agriculture practices.	40.8	20	91.8	45	+51.0	+25
When I hear the word Agriculture – I see it as a negative.	10.2	5	30.6	15	+20.4	+10

*Note. Respondents could select “Yes,” “No,” or “I don’t know.” Only “Yes” and “No” responses are reported.*

#### Objective 4

*Compare the youth's knowledge about the commodities of agriculture before and after attending the Mobile Learning Barn agricultural education program.*

The knowledge-based questions included in both the pre-test and post-test instruments were utilized to assess knowledge gain related to the participation in the Mobile Learning Barn agricultural education program. The participants' pre-test mean score was 7.0 correct answers out of ten (70.0%). The participants' post-test mean score was slightly greater at 7.24 correct answers out of ten (72.4%). A paired sample t-test revealed no significance at the .05 level (see Table 7). A small effect size (0.38) was indicated by using Cohen's d (Thalheimer & Cooke, 2002).

Table 7

*Comparison of Pre-Test Knowledge Scores and Post-Test Knowledge Scores for Participants of the Mobile Learning Barn Agricultural Education Program During the Summer of 2013 in Two Counties (N=49)*

	M	SD	<i>t</i>	<i>p</i>
Pre-Test Scores	7.00	1.98	-1.32	.19
Post-Test Scores	7.24	2.17		

## **Objective 5**

*Determine if parental experience with agriculture impacts youth's knowledge or perceptions of agriculture.*

A parent of each child completed a survey related to family involvement in agriculture to determine if there was a relationship between the parent's agricultural involvement and the agricultural knowledge and perceptions of their children. Some parent surveys were returned blank (n=4, 8.2%). There were 71.1% of the parents who reported to be the mother of their child. Only 26.6% reported having daily interaction with agriculture and 66.7% reported that their children are never exposed to agriculture. Of the responding parents, 64.4% stated that agriculture is not a part of their daily life, while 73.3% agreed that teaching children about the importance of agriculture today will benefit their future. Parental experience with agriculture is reported in Table 8 and parental daily interaction with agriculture compared to the children's pre-test knowledge score is reported in Table 9.



Table 8

*Summary of Parental Survey Responses of the Participants of the Mobile Learning Barn Agricultural Education Program during the Summer of 2013 in Two Counties (N=45)*

Statement	Response	n	%
I am the Child's...	Mother	32	71.1
	Father	5	11.1
	Guardian	8	17.8
Do you have daily interaction with agriculture?	Yes- I live on a farm or ranch	5	11.1
	Yes-I work in agriculture	2	4.4
	No	5	11.1
		33	73.3
My child is exposed to agriculture.	Daily		
	Monthly	7	15.6
	Yearly	5	11.1
	Never	2	4.4
		30	66.7
Agriculture is a part of my daily life.	Yes		
	No	8	17.8
	I do not know	29	64.4
		8	17.8
I teach my child about the importance of agriculture.	Yes		
	No	16	35.6
	I do not know	18	40.0
		11	24.4
Teaching my child about the importance of agriculture today will benefit their future.	Yes		
	No	33	73.3
	I do not know	2	4.4
		10	22.2
What impact will the Mobile Learning Barn program have on your child?	Positive		
	Negative	32	71.1
	Undecided	0	0.0
		13	28.9

*Note.* There were 4 parents who did not respond.

Table 9

*Summary of Parent Survey Responses for Participants of the Mobile Learning Barn Agricultural Education Program During the Summer of 2013 in Two Counties (N=45)*

Daily Interaction	n	%	Score*
Yes - I live on a farm or ranch	5	10.2	8.2
Yes - I work in agriculture	2	4.1	8
Yes - I have family involved in agriculture	5	10.2	7
No daily interaction	33	67.3	7.8

*Note. Average pre-test knowledge score out of 10 for the children of the parents for the answer to the daily interaction question.*

As part of the post-test instrument, participants were asked about their experience at the Texas Farm Bureau Mobile Learning Barn agricultural education program. Participants were asked which portion of Mobile Learning Barn they had learned the most from as well as which portion of the program had been the most fun. Table 10 and Table 11 reveal the responses of the participants.

Table 10

*Participant Responses about Their Participation in the Mobile Learning Barn  
Agricultural Education Program Related to the Commodity Participants Reported They  
Learned the Most (N=47)*

Section	n	%
Wheat	6	12.2
Rice	8	16.3
Pork	1	2.0
Cotton	2	4.1
Cattle	6	12.2
Other*	20	40.8
Nothing	4	8.2

*Note: Participants responded with more than one answer.*

Table 11

*Participant Responses about Their Participation in the Mobile Learning Barn Agricultural Education Program related to the Section Participants Reported They Had the Most Fun (N=47)*

Section	n	%
Wheat	1	2.0
Rice	7	14.3
Pork	4	8.2
Cotton	0	0.0
Cattle	2	4.1
Other*	32	65.3
Nothing	1	2.0

*Note: Participants responded with more than one answer.*

Based on the youth's experience at the Mobile Learning Barn, the youth were asked if they would like to attend the educational program in the future. Almost half of the children (46.9%) stated that they were unsure and might want to attend the Mobile Learning Barn again while 44.9% answered that they would want to attend it in the future (see Table 12).

Table 12

*Responses for Participants of the Mobile Learning Barn Agricultural Education Program During the Summer of 2013 in Two Counties: Would you Like to Attend the Mobile Learning Barn in the Future (N=47)*

Response	n	%
Yes	22	44.9
No	2	4.1
Maybe	23	46.9

## Chapter Summary

A quantitative data analysis of the pre-test, post-test, and parent survey instrument responses was completed. The total population for the study consisted of 49 participants from two clubs as well as the parent of each child. The findings to each objective was reported: objective one (i.e., determine knowledge and perceptions of youth concerning agriculture before attending the Mobile Learning Barn agricultural education program) was displayed in Table 4, objective two (i.e., determine knowledge and perceptions of youth concerning agriculture after attending to the Mobile Learning Barn agricultural education program) was displayed in Table 5, objective three (i.e., compare the youth's perceptions about agriculture before and after attending the Mobile Learning Barn agricultural education program) was displayed in Table 6, objective four (i.e., compare the youth's knowledge about the commodities of agriculture before and after attending the Mobile Learning Barn agricultural education program) was displayed in Table 7, and objective five (i.e., determine if parental experience with agriculture

impacts youth's knowledge or perceptions of agriculture) was displayed in Tables 8 and 9.

Tables 1-3 reported the demographics (gender, age, and ethnicity) of the youth participants. As part of the post-test instrument, participants were asked about their experience at the Texas Farm Bureau Mobile Learning Barn agricultural education program. Table 10 displayed participant responses related to the commodity where participants reported they learned the most. Table 11 displayed participant responses related to the section where participants reported they had the most fun. The youth were asked if they would like to attend to the educational program in the future and the results were revealed in Table 12.

## CHAPTER V

### CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

#### **Conclusions**

*Objective 1: Determine knowledge and perceptions of youth concerning agriculture before attending the Mobile Learning Barn agricultural education program.*

Given that the youth scored 70% correct on the pre-test instrument, it was concluded that participants possessed agricultural knowledge prior to the educational program. It is possible that the high score occurred due to the fact that 53.1% of the participants reported that they had received lessons about agriculture in school. Based on the findings that only 34.7% of the participants believed that agriculture impacted them daily and that 44.9% reported that agriculture was not a part of their daily life, it was concluded that participants did not understand the important role that agriculture plays in their lives and in society.

The pre-test instrument revealed that more than 50% of the participants were excited about their future tour of the Texas Farm Bureau Mobile Learning Barn agricultural education program and that they would like to learn more about agriculture. Few participants reported a desire to work in agriculture. Further, many did not indicate an awareness of the multitude of jobs available within and across agriculture. Although, it has been stated that our country has become one step further removed from production agriculture (Flood & Elliot, 1994), one can suggest, based on these findings, that youth involved in this study have knowledge but poor perceptions of agriculture in today's

society; therefore, it was concluded that there remains a strong need for agricultural education programs such as the Mobile Learning Barn to improve and positively impact youth's perceptions pertaining to the subject of agriculture.

*Objective 2: Determine knowledge and perceptions of youth concerning agriculture after attending the Mobile Learning Barn agricultural education program.*

Based on the finding that participants slightly increased their basic knowledge questions by 2% after exposure to the Mobile Learning Barn agricultural education program, it was concluded that the program had a slight positive impact on knowledge gain. It was further concluded that the agricultural education program under study has the potential to increase knowledge about agriculture. Based on findings related to youth perceptions of agriculture, it was concluded that the participants enjoyed their visit to the Texas Farm Bureau Mobile Learning Barn agricultural education program. However, given that only 44.9% of the participants reported that they would like to return to the Mobile Learning Barn agricultural education program in the future, it was concluded that not all participants had a positive experience.

*Objective 3: Compare the youth's perceptions on agriculture before and after attending the Mobile Learning Barn agricultural education program.*

Based on findings, it was concluded that the Mobile Learning Barn agricultural education program increased participants' positive perceptions about agriculture. Prior to attending the Mobile Learning Barn agricultural education program, participants indicated that agriculture impacted them daily and this number increased following participation in the program. However, in the response to the statement, "Agriculture is



part of my daily life,” there was a decrease in the number of participants that responded in agreement to that statement following participation in the program. Thus, it was concluded that the educational program did not clearly portray the role that agriculture plays in daily life. Based on a comparison of youth responses to perception statements about agriculture, it was concluded that attending the Mobile Learning Barn agricultural education program had a positive effect on youth perceptions of agriculture, changing the way children portray the idea that food does not simply come from the store (Blackburn, 1999). However, the effect was not statistically significant.

Both before and after participating in the Mobile Learning Barn agricultural education program, the majority of the children believed there was a need to learn about agriculture. Based on findings, the Mobile Learning Barn agricultural education program had a positive effect on youth’s interest in working in agriculture and also increased their recognition of the role that agriculture plays in regard to food, clothing, and shelter. The positive attitudes developed, build children into informed leaders (Townsend, 1990).

*Objective 4: Compare the youth’s knowledge about the commodities of agriculture before and after attending the Mobile Learning Barn agricultural education program.*

Based on the finding that the knowledge of the participants regarding agriculture was slightly lower prior to attending the Mobile Learning Barn agricultural education program compared to their knowledge after attending the program, it was concluded that the educational program had a positive effect on knowledge gain. However, this effect was not statistically significant. It was concluded that the Mobile Learning Barn

agricultural education program has the potential to increase third through fifth grade youth's knowledge about basic agriculture, which can increase the amount of agricultural knowledge that allows individuals to make informed personal choices (Agriculture Council of America, 2013). The findings suggest that participants who had "no" prior agricultural experience had minimal to no increase in knowledge about agriculture compared to those who had "some" previous experience with agriculture that resulted in a slight increase in knowledge. There are several different conclusions that one can make based on these findings and observations. The participants with prior experience may have already been aware of basic agriculture and were not engaged in the program because they believed that they already knew everything that would be shared. Based on the findings, it was concluded that the need continues to provide educational opportunities for youth to learn about agriculture.

Based on self-reported data related to the responses about what participants "learned the most from" during the program, it was concluded that participants perceived that they gained the most knowledge from the wheat and cattle portions of the program. These exhibits were the most relatable to the children illustrating that cattle provide sports balls, food and clothing and wheat provides cereal and various breads that children use daily.

*Objective 5: Determine if parental involvement in agriculture impacts youth's knowledge or perceptions of agriculture.*

Based on the findings that the youth who have parents involved in agriculture had higher scores on the knowledge portion of the pre-test instrument, it was concluded

that parental involvement in agriculture effects agricultural knowledge of a child. However, youth that do not have parents involved in agriculture had less than a one point difference in overall average knowledge scores. Findings revealed that parents who live on a farm or ranch had children with higher knowledge about agriculture; however, the youth had a mixture of negative and positive perceptions about agriculture. There are several conclusions that can be drawn based on these findings. It was concluded that parents, as well as children, have a need for exposure to agriculture. Further, it cannot be concluded that children with parents who are involved in agriculture are agriculturally informed or possess consistently positive perceptions of agriculture or will pursue a career in agriculture.

## **Recommendations**

### *Improving Educational Programs*

Based on the conclusion that the Mobile Learning Barn agricultural education program increased knowledge and encouraged positive perceptions about agriculture, it was recommended that agricultural education programs for elementary school-aged children be readily available to children in and outside of a school setting. However, it is critical that these programs be constantly updated in regard to content and change to address the future workforce (Parker, Brase, Dewsnup, Anderson, Collins, Klopp, & Feldmann, 2009). Programs, such as the one evaluated, should compare the curriculum taught in science classes to what is taught by the educational programs to ensure that children have the opportunity to learn new knowledge. It is recommended that youth be exposed to programs regularly. It is vital that children learn about the importance of

agriculture during formative years, because once youth reach high school, their perceptions of agriculture generally are fixed and it is harder to educate them due to their lack of interest in agriculture (Meunier et al., 2003). Repetitive exposure to the agricultural industry has the potential to generate a more lasting impact rather than a short-term change.

Further, an enhanced hands-on approach for educational programming is recommended. The Texas Farm Bureau Mobile Learning Barn agricultural education program could be improved through the addition of multiple hands-on experiences that allow youth a more direct experience. Live animals, crops, and equipment could be displayed to allow the children to see agriculture in action. To increase overall knowledge gain, the Mobile Learning Barn agricultural education program should extend the program time with more agricultural information.

Given that job awareness and employment interest in agriculture increased following the educational program, it is recommended that programs continue to share information regarding job opportunities related to the agricultural industry. The Mobile Learning Barn agricultural education program could also improve by providing educational materials such as coloring pages, information pamphlets, and activity sheets. Youth could take these items home and refer to them during conversations with their parents. Parental engagement could in return encourage children to become more interested in agriculture. Programs should invite parents to participate alongside their child, thus increasing the knowledge of the adult and youth. Parents that work in the

agricultural industry would be great examples to children as they share their experiences and involvement.

#### *Parental Agriculture Influences*

Parental influence and encouragement to learn about agriculture is important and a determining factor in the amount of knowledge that youth gain. It is recommended that programs and educators reach out to parents as well as children. Parents can be invited to the programs along with the children or separate programs can take place that are directed towards adults. This would be an opportunity for adults to learn the importance of agriculture and why it is important to teach their children about it and how it affects their child daily. As parents become more educated and share the knowledge with their children, children will be more likely to increase their agricultural knowledge and literacy. It is recommended that the Mobile Learning Barn agricultural education program extend their efforts to parents and adults to improve the success of the program. It is vital that both audiences be targeted to enable an increase in agricultural literacy across generations.

#### *Recommendations for Future Research*

It is recommended that further research be conducted on the Texas Farm Bureau Mobile Learning Barn agricultural education program using an improved instrument with additional questions that would add rigor to the instruments and increase the reliability and validity. Further, a larger population should be evaluated along with the eight other Mobile Learning Barns to determine if participants across Texas are receiving the same experience. It is also recommended that a more comprehensive

instrument be developed to assess parents and/or guardian's knowledge and engagement in agriculture that can add rigor to the study. The instrument should be provided for all parents of the household. New teaching methods about the delivery of agricultural education should also be examined. The Mobile Learning Barn agricultural education program should be examined with extensive research on more in-depth and hands-on experiences for the youth. Programs should also be tested on parents to discover new ways to meet the needs of both audiences.

### **Implications**

Based on conclusions, third through fifth grade youth who participated in the program possessed limited knowledge about agriculture prior to attending the Mobile Learning Barn agricultural education program. This implies that there is still a need for agricultural education programs for youth. The conclusion that parental involvement with children about agriculture increased youth's knowledge and perceptions of agriculture implies that educational programs with adults could directly impact youth. Studies regarding the impact of agricultural education programs and the influence parents have on their children have been conducted to investigate their effectiveness on educating and influencing youth (Boleman & Burrell, 2003, Gonzalez-DeHass et al., 2005). However, based on the results from this study, additional programs that focus on agricultural education for youth and parents to increase agricultural literacy are needed.

Conclusions shared previously provide insight for Texas Farm Bureau personnel in regard to understanding the benefits of incorporating parental involvement along with hands-on activities to educate youth and parents about agriculture. The implication

exists for further research to be conducted on the Texas Farm Bureau Mobile Learning Barn agricultural education program, given that this study was the first to evaluate the program. The program's effectiveness in impacting the perceptions and knowledge of children can be investigated along with ways to improve the impact of the program.

This study provided insight on understanding how third through fifth grade children benefit from participating in an agricultural education program and how a parent's agricultural involvement influences and encourages a child. This study adds to the body of research related to society's perceptions and knowledge of agriculture.

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## APPENDIX A

### PRE-TEST INSTRUMENT

#### The Impact of Participation in a Hands-On Agricultural Activity: Assessing Changes in Knowledge and Perception of Agriculture

**INSTRUCTIONS:** In this first section, we want to know what you think about agriculture. Please read the following statements and circle what you think about this statement. There are no right or wrong answers.

	Yes	No	I don't know
1. Agriculture is a part of my everyday life.	1	2	3
2. Agriculture impacts me daily.	1	2	3
3. Agriculture is important to my community.	1	2	3
4. I feel that it is important for youth like me to learn about agriculture.	1	2	3
5. I am excited about tour of the Mobile Learning Barn.	1	2	3
6. I would like to learn more about agriculture.	1	2	3
7. I would like to work in agriculture.	1	2	3
8. There are many jobs in the area of agriculture.	1	2	3
9. When I hear the word Agriculture – I see it as a positive.	1	2	3
10. Shelter is a result of agricultural practices.	1	2	3
11. Agriculture is an interesting topic.	1	2	3
12. I have observed agriculture in action.	1	2	3
13. Food is a result of agricultural practices.	1	2	3
14. Clothing is a result of agricultural practices.	1	2	3
15. When I hear the word Agriculture – I see it as a negative.	1	2	3

**INSTRUCTIONS:** Now, we want to find out how much you know about agriculture. Please answer the following questions and circle your answer choice. Even if you don't think you know the answer to a question, please answer it to the best of your ability.

16. Sheep produce \_\_\_\_\_.
- a. cotton
  - b. fur
  - c. wool
  - d. hair
17. Potatoes and carrot both grow:
- a. On trees
  - b. In grocery stores
  - c. Under the ground
  - d. In the air



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18. Where does wool come from?
- a. Plants
  - b. Sheep
  - c. Cows
  - d. Goats
19. Which of the following comes from cows?
- a. Milk
  - b. Leather
  - c. Meat
  - d. All of the above
20. Milk can be made into all of the following EXCEPT:
- a. Yogurt
  - b. Cheese
  - c. Butter
  - d. Orange Juice
21. What does a garden need in order to grow vegetables?
- a. Sun and water
  - b. Grass and soil
  - c. Plastic and water
  - d. Sticks and leaves
22. When you eat bread or donuts you are eating \_\_\_\_\_.
- a. Grain
  - b. Meat
  - c. Vegetables
  - d. Fruits
23. Cotton is used to make \_\_\_\_\_.
- a. Football
  - b. Money
  - c. Toothpaste
  - d. Paint
24. Items I use daily that come from agriculture include?
- a. Toothpaste
  - b. T-shirt
  - c. Chips
  - d. All of the above
25. Which plant produces fiber for clothing?
- a. Soybeans
  - b. Rice
  - c. Cotton
  - d. Corn



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## Demographics & Personal Characteristics

**INSTRUCTIONS:** Finally, we want to know a little bit about you. Please answer the following questions and circle your answer choice. If you do not understand what we are asking, please ask for help.

26. How old are you?
- a. 9 years old or younger
  - b. 10 years old
  - c. 11 years old
  - d. 12 years old or older
27. I am \_\_\_\_\_
- a. Male
  - b. Female
28. I consider myself as \_\_\_\_\_
- a. African-American (Black)
  - b. Caucasian (White, Non-Hispanic)
  - c. Hispanic (Includes people of Mexican, Puerto Rican, Cuban, Central or South America Descent)
  - d. Asian-American or Pacific Islander
  - e. Native American
  - f. Other
29. How do you prefer to learn:
- a. Doing an activity by yourself
  - b. The teacher showing you a lesson with pictures and graphs
  - c. The teacher telling you about the information
30. What grades do you make in school?
- a. Mostly A's
  - b. A's and B's
  - c. Mostly B's
  - d. B's and C's
  - e. Mostly C's
  - f. Below C average
31. What experience have you had with agriculture? (i.e. livestock, crops – any kind).
- a. None
  - b. I have previously toured a rodeo/stock show.
  - c. I have had contact with farm animals and/or crops more than once.
  - d. I or my family owns farm animals and/or grow crops
32. I have received lessons about agriculture at my school.
- a. Yes
  - b. Somewhat
  - c. No

*Thank you for taking the survey!*



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## APPENDIX B

### POST-TEST INSTRUMENT

#### The Impact of Participation in a Hands-On Agricultural Activity: Assessing Changes in Knowledge and Perception of Agriculture

**INSTRUCTIONS:** In this first section, we want to know what you think about agriculture. Please read the following statements and circle what you think about this statement. There are no right or wrong answers.

	Yes	No	I don't know
1. Clothing is a result of agricultural practices.	1	2	3
2. Agriculture impacts me daily.	1	2	3
3. I liked my tour of the Mobile Learning Barn.	1	2	3
4. When I hear the word Agriculture – I see it as a negative.	1	2	3
5. Agriculture is important to my community.	1	2	3
6. Shelter is a result of agricultural practices.	1	2	3
7. I have observed agriculture in action.	1	2	3
8. There are many jobs in the area of agriculture.	1	2	3
9. When I hear the word Agriculture – I see it as a positive.	1	2	3
10. I would like to learn more about agriculture.	1	2	3
11. Agriculture is an interesting topic.	1	2	3
12. I would like to work in agriculture.	1	2	3
13. Food is a result of agricultural practices.	1	2	3
14. Agriculture is a part of my everyday life.	1	2	3
15. I feel that it is important for youth like me to learn about agriculture.	1	2	3

**INSTRUCTIONS:** Now, we want to find out how much you know about agriculture. Please answer the following questions and circle your answer choice. Even if you don't think you know the answer to a question, please answer it to the best of your ability.

16. Sheep produce \_\_\_\_\_.
- a. cotton
  - b. fur
  - c. wool
  - d. hair
17. Which of the following comes from cows?
- a. Milk
  - b. Leather
  - c. Meat
  - d. All of the above



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18. Potatoes and carrot both grow:
- a. On trees
  - b. In grocery stores
  - c. Under the ground
  - d. In the air
19. Where does wool come from?
- a. Plants
  - b. Sheep
  - c. Cows
  - d. Goats
20. Milk can be made into all of the following EXCEPT:
- a. Yogurt
  - b. Cheese
  - c. Butter
  - d. Orange Juice
21. What does a garden need in order to grow vegetables?
- a. Sun and water
  - b. Grass and soil
  - c. Plastic and water
  - d. Sticks and leaves
22. Which plant produces fiber for clothing?
- a. Soybeans
  - b. Rice
  - c. Cotton
  - d. Corn
23. When you eat bread or donuts you are eating \_\_\_\_\_.
- a. Grain
  - b. Meat
  - c. Vegetables
  - d. Fruits
24. Cotton is used to make \_\_\_\_\_.
- a. Football
  - b. Money
  - c. Toothpaste
  - d. Paint
25. Items I use daily that come from agriculture include:
- a. Toothpaste
  - b. T-shirt
  - c. Chips
  - d. All of the above



IRB NUMBER: IRB0013-0617  
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### Demographics

**INSTRUCTIONS:** Finally, we want to know about your experience at the Texas Farm Bureau Mobile Learning Barn. Please answer the following question and circle your answer choice and fill in the blanks. If you do not understand what we are asking, please ask for help.

25. Would you like to go through the Texas Farm Bureau Mobile Learning Barn?
- a. Yes  
b. No  
c. Maybe

27. What part of the Mobile Learn Barn did you learn the most from?

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28. The most fun part of the program was

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*Thank you for taking the survey!*



IRB NUMBER: IRB2013-0411  
IRB APPROVAL DATE: 07/05/2013  
IRB EXPIRATION DATE: 07/01/2014

## APPENDIX C

### PARENT PERMISSION FORM

#### TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM PARENTAL PERMISSION FORM

##### An Examination of the Effects of the Texas Farm Bureau Mobile Learning Barn Educational Program

You are invited to take part in a research study being conducted by Joni Howard, a researcher from Texas A&M University. The information in this form is provided to help you and your child decide whether or not to take part. If you decide to allow your child and yourself to take part in the study, you will be asked to sign this permission form. If you decide you do not want your child or yourself to participate, there will be no penalty to you or your child, and your child will not lose any benefits they normally would have.

#### **Why Is This Study Being Done?**

The purpose of this study is to measure if children respond to the Mobile Learning Barn in a positive or negative way and the effect it may have on their view on agriculture.

#### **Why is My Child Being Asked to Be in This Study?**

Your child is being asked to be in this study because third through fifth grade children are needed. The Boy's and Girl's Club of Cooke County has agreed to have the Mobile Learning Barn come to the facility and to allow the study to be conducted.

#### **Why am I Being Asked to Be in This Study?**

You, as the parent, are asked to complete a short survey about agriculture. You are being asked to be in this study to determine if your knowledge and history of agriculture affects your child's knowledge about agriculture.

#### **How Many People Will Be Asked To Be In This Study?**

Approximately 100 participants will be invited to participate in the study.

#### **What Are the Alternatives to being in this study?**

There will be a coloring sheet given to children that do not choose to participate. There is no alternative for the parents. Parents may simply choose not to participate.

#### **What Will My Child Be Asked To Do In This Study?**

Your child will be asked to complete a survey before going through the educational program and another survey after they have completed the program. Approximately 30 questions will be on each survey. Your child's participation in this study will last up to 10 minutes per survey and includes 1 visit. It will take approximately 4 hours to complete the Mobile Learning Barn Program which will be part of the normal activities for the day.

#### **What Will I Be Asked To Do In This Study?**

You will be asked to complete a 7 question survey about agriculture. Your participation in this study will last up to 5 minutes.

#### **Day of the study:**

The Mobile Learning Barn Program will last about 4 hours with 20 minutes to complete the surveys. Children will fill out a survey answering various questions about agriculture. They will

**TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM  
PARENTAL PERMISSION FORM**

then attend the Mobile Learning Barn Educational Program that will teach them about the different commodities of agriculture. At the conclusion of the program, your child will be given a similar survey to see if their answers have changed.

**Are There Any Risks To My Child Or Myself?**

The things that you and your child will be doing are no greater than risks than you or your child would come across in everyday life.

**Will There Be Any Costs To My Child Or Myself?**

Aside from time, there are no costs for taking part in the study.

**Will My Child Be Paid To Be In This Study?**

Your child will not be paid for being in this study.

**Will Information From This Study Be Kept Private?**

The records of this study will be kept private. No identifiers linking you or your child to this study will be included in any sort of report that might be published. Research records will be stored securely and only researchers will have access to the records.

Information about you and your child will be stored in a locked file cabinet and on computer files protected with a password. This consent form will be filed securely in an official area.

Information about you and your child will be kept confidential to the extent permitted or required by law. People who have access to your information include the Principal Investigator and research study personnel. Representatives of regulatory agencies such as the Office of Human Research Protections (OHRP) and entities such as the Texas A&M University Human Subjects Protection Program may access your child's records to make sure the study is being run correctly and that information is collected properly.

Information about you and related to this study will be kept confidential to the extent permitted or required by law.

**Who may I Contact for More Information?**

You may contact the Principal Investigator, Joni Howard, to tell her about a concern or complaint about this research at 940-391-9220 or [jonihoward@tamu.edu](mailto:jonihoward@tamu.edu). You may also contact the Research Advisor, Dr. Theresa Murphrey at 979-458-2749 or [t-murphrey@tamu.edu](mailto:t-murphrey@tamu.edu).

For questions about your child's rights as a research participant; or if you have questions, complaints, or concerns about the research, you may call the Texas A&M University Human Subjects Protection Program office at (979) 458-4067 or [irb@tamu.edu](mailto:irb@tamu.edu).

**What if I Change My Mind About Participating?**

This research is voluntary and you have the choice whether or not to participate and to allow your child to be in this research study. You and your child may decide to not begin or to stop participating at any time. If you or your child choose not to be in this study or stop being in the study, there will be no effect on their or your relationship with Texas A&M University, Texas Farm Bureau, or the Boy's and Girl's Club.

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**TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM  
PARENTAL PERMISSION FORM**

**STATEMENT OF CONSENT**

The procedures, risks, and benefits of this study have been told to me and I agree to allow my child to be in this study and I agree to participate in the parent survey. My questions have been answered. I may ask more questions whenever I want. I do not give up any of my child's or my legal rights by signing this form. A copy of this consent form will be given to me.

\_\_\_\_\_  
Child's Name

\_\_\_\_\_  
Parent/Legal Guardian Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Parent/Legal Guardian Signature

\_\_\_\_\_  
Date

**INVESTIGATOR'S AFFIDAVIT:**

Either I have or my agent has carefully explained to the parent the nature of the above project. I hereby certify that to the best of my knowledge the person who signed this consent form was informed of the nature, demands, benefits, and risks involved in his/her participation.

\_\_\_\_\_  
Signature of Presenter

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

Version Date:

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IRB NUMBER: IRB2013-0411  
IRB APPROVAL DATE: 07/05/2013  
IRB EXPIRATION DATE: 07/01/2014

APPENDIX D  
PARENT SURVEY

Parent Survey

1. I am the child's
  - a. Mother
  - b. Father
  - c. Guardian
2. Do you have daily interaction with agriculture?
  - a. Yes- I live on a farm or ranch
  - b. Yes- I work in agriculture
  - c. Yes- I have family involved in agriculture
  - d. No
3. My child is exposed to agriculture
  - a. Daily
  - b. Monthly
  - c. Yearly
  - d. Never
4. Agriculture is a part of my daily life.
  - a. Yes
  - b. No
  - c. I do not know
5. I teach my child about the important of agriculture.
  - a. Yes
  - b. No
  - c. I do not know
6. Teaching children about the importance of agriculture today is a benefit for their future
  - a. Yes
  - b. No
  - c. Undecided
7. What impact will the Mobile Learning Barn Educational Program have on your child?
  - a. Positive
  - b. Negative
  - c. Undecided



IRB NUMBER: IRB2013-0411  
IRB APPROVAL DATE: 07/05/2013  
IRB EXPIRATION DATE: 07/01/2014

## APPENDIX E

### INSTITUTIONAL REVIEW BOARD

#### DIVISION OF RESEARCH

Office of Research Compliance and Biosafety



**APPROVAL DATE:** 07/05/2013

**MEMORANDUM**

**TO:** Theresa PESL Murphrey  
ALRSRCH - Agrilife Research - Ag Leadership, Education & Communication

**FROM:** Dr. James Fluckey  
Chair  
Institutional Review Board

**SUBJECT:** Initial Review Submission Form Approval

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**Protocol Number:** IRB2013-0411

**Title:** An Examination of the Effects of the Texas Farm Bureau Mobile Learning Barn Educational Program

**Review Type:** Expedited

**Approved:** 07/05/2013

**Continuing**

**Review Due:** 06/01/2014

**Expiration Date:** 07/01/2014

**Documents** Assent Protocol 07/01/13 version 2.0

**Reviewed and** Parental Permission version 1.1

**Approved:** Parent Survey 1.0

Post\_Survey 6/11/13 version 1.0

Pre\_Test 6/11/13 version 1.0

**Document of**

**Consent:** Written consent in accordance with 45 CF 46.116/ 21 CFR 50.27

**Comments:** 45 CFR 46 Subpart D; 45 CFR 46.404/ 21 CFR 50.51): Not greater than minimal risk  
Assent from Some or All under 45 CFR 46.408/ 46.116/ 21 CFR 50.55  
Parental Permission 2 parent signature

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This research project has been approved. As principal investigator, you assume the following responsibilities

1. **Continuing Review:** The protocol must be renewed by the expiration date in order to continue with the research project. A Continuing Review application along with required documents must be submitted by the continuing review deadline. Failure to do so may result in processing delays, study termination, and/or loss of funding.
2. **Completion Report:** Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the IRB.
3. **Unanticipated Problems and Adverse Events:** Unanticipated problems and adverse events must be reported to the IRB immediately.
4. **Reports of Potential Non-compliance:** Potential non-compliance, including deviations from protocol and violations, must be reported to the IRB office immediately.
5. **Amendments:** Changes to the protocol must be requested by submitting an Amendment to the IRB for review. The Amendment must be approved by the IRB before being implemented.
6. **Consent Forms:** When using a consent form or information sheet, you must use the IRB stamped

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